D3646-3

**Work Order ID 99383** B99383 *99383* 

*April-05-13 1:24:48 PM*

| | | | | | |
|---|---|---|---|---|---|
| **Item ID:** | D3646-3 | **Accept** | *N900040100* | **Setup Start** | *NS1* |
| **Revision ID:** | | | | **Stop** | *NS2* |
| **Item Name:** | Arm | | | | |
| **Start Date:** | 4/04/13 | **Start Qty:** 4.00 | *4* | **Cust Item ID:** | |
| **Required Date:** | 4/19/13 | **Req'd Qty:** 4.00 | *4* | **Customer:** | |
| **Reference:** | | | | | |

**Approvals:** **Process Plan:** MLS **Date:** 13-04-05 **Tooling:** ______ **Date:** ______ **Run Start** *NR1*

**QC:** ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

| Sequence ID/ Work Center ID | Operation Description | | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|---|
| **Draw Nbr** | **Revision Nbr** | | | | | | | | | |
| D3646 | Rev C | | | | | | | | | |
| 100 *100* Brake NC Brake NC | NC BRAKE | **Memo** 1-Punch to length as per Dwg D3646 & template DT8959 | 0.00 0.00 | | | | 4 | | | FF 13-11-26 |
| 110 *110* Small Fab Small Fab | Small Fab | **Memo** 1-Deburr2- Bend as per dwg D3646 | 0.00 0.00 | | | | 4 | | | FF 13-11-26 |
| 120 *120* QC Quality Control | QC5- Inspect part completeness to step on W/O | **Memo** | 0.00 0.00 | DAS 27 9-89 13/11/27 | | | 4 | | | |

DQA: ________ Date: ____________

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

| Work Order: ________ | DISPOSITION | AGAINST DEPARTMENT/PROCESS | | | |
|---|---|---|---|---|---|
| Part No. ________ | Rework ☐ | Skid-tube ☐ | Crosstube ☐ | Water Jet ☐ | Engineering ☐ |
| NCR No. ________ | Scrap ☐ | Machining ☐ | Small Fab ☐ | Prod. Eng. Coor. ☐ | Quality ☐ |
| | Use-as-is ☐ | Thermoforming ☐ | Finishing ☐ | Rec/Store/Packaging ☐ | Other ☐ |
| | Work Order Update ☐ | Large Fab ☐ | Composite ☐ | Supplier ☐ | ☐ |

| Root Cause | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---|---|---|---|---|---|---|---|---|---|
| Doc/Data ☐ | | | | | | | | | |
| Equip/Tooling ☐ | | | | | | | | | |
| Operator ☐ | | | | | | | | | |
| Material ☐ | | | | | | | | | |
| Setup ☐ | | | | | | | | | |
| Other ☐ | | | | | | | | | |
| Process ☐ | | | | | | | | | |
| Supplier ☐ | | | | | | | | | |
| Training ☐ | | | | | | | | | |
| Unapproved ☐ | | | | | | | | | |

## FAULT CATEGORY

| Landing Gear | General | | | |
|---|---|---|---|---|
| ☐ Bending | ☐ Bend | ☐ Grain | ☐ Ovalized | ☐ Pressure/Forced |
| ☐ Centre Not Concentric to O/S | ☐ BOM/Route | ☐ Hardware | ☐ Over/Under tolerance | ☐ Temperature/Cure |
| ☐ Cracks | ☐ Broken/Damaged | ☐ Inspection Incomplete | ☐ Part Incorrect | ☐ Weld |
| ☐ Crushed/Crimped | ☐ Burrs | ☐ Instructions Incomplete/Unclear | ☐ Part Lost/Missing | ☐ Wrong Stock Pulled |
| ☐ Cuffs | ☐ Contamination | ☐ Maintenance | ☐ Part Moved | |
| ☐ Heat Treat | ☐ Countersink | ☐ Mislabeled | ☐ Positioned Wrong | |
| ☐ Inspection Strip in Tube | ☐ Cut Too Short | ☐ Misread | ☐ Power Loss/Surge | ☐ Other ________ |
| ☐ Ripples in Bend | ☐ Drill Holes | ☐ Offset | ________ | |
| ☐ Torque Waves in Extrusion | ☐ Drawing | ☐ Out of Calibration | ________ | |
| ☐ Turning Sequence | ☐ Finish | ☐ Out of Sequence | ________ | |
| ☐ Wave/Twist in Tube | ☐ Folio | ☐ Outside Dimensions | | |

**Work Order ID 99383**

*April-05-13 1:24:48 PM*

*99383*

**Item ID:** D3646-3
**Revision ID:**
**Item Name:** Arm

**Accept** *N900040100*

**Setup** **Start** *NS1*
**Stop** *NS2*

**Start Date:** 4/04/13 **Start Qty:** 4.00 *4*
**Required Date:** 4/19/13 **Req'd Qty:** 4.00 *4*
**Reference:**

**Cust Item ID:**
**Customer:**

**Run** **Start** *NR1*
**Stop** *NR2*

**Approvals:** **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______
**QC:** ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 130 *130* Powdercoat Powder Coating | Black Sandtex(Ref:4.3.5.7) per QSI005 4.3 M126878. **Memo** START TIME: 3:20 FINISH TIME: 3:45 OVEN TEMPERATURE: 4:15. | 0.00 / 0.00 | | | | 4 | ∅ | 13-11-27. | DAS 34 9-89 |
| 140 *140* QC Quality Control | QC3- Inspect Part Finish **Memo** | 0.00 / 0.00 DAS 27 9-89 13/11/28 | | | | 4 | | | |
| 150 *150* Packaging Packaging | Identify as per dwg & Stock Location: 87255A **Memo** | 0.00 / 0.00 | | | | 4 x | | | DAS 9-89 13-11-28 |

DAS 26 9-89

DQA: ________ Date: ____________

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: ____________________

Part No. ____________________

NCR No. ____________________

**DISPOSITION**

- [ ] Rework
- [ ] Scrap
- [ ] Use-as-is
- [ ] Work Order Update

**AGAINST DEPARTMENT/PROCESS**

- [ ] Skid-tube
- [ ] Machining
- [ ] Thermoforming
- [ ] Large Fab
- [ ] Crosstube
- [ ] Small Fab
- [ ] Finishing
- [ ] Composite
- [ ] Water Jet
- [ ] Prod. Eng. Coor.
- [ ] Rec/Store/Packaging
- [ ] Supplier
- [ ] Engineering
- [ ] Quality
- [ ] Other
- [ ]

| Root Cause | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---|---|---|---|---|---|---|---|---|---|
| Doc/Data ☐ | | | | | | | | | |
| Equip/Tooling ☐ | | | | | | | | | |
| Operator ☐ | | | | | | | | | |
| Material ☐ | | | | | | | | | |
| Setup ☐ | | | | | | | | | |
| Other ☐ | | | | | | | | | |
| Process ☐ | | | | | | | | | |
| Supplier ☐ | | | | | | | | | |
| Training ☐ | | | | | | | | | |
| Unapproved ☐ | | | | | | | | | |

## FAULT CATEGORY

**Landing Gear**

- [ ] Bending
- [ ] Centre Not Concentric to O/S
- [ ] Cracks
- [ ] Crushed/Crimped
- [ ] Cuffs
- [ ] Heat Treat
- [ ] Inspection Strip in Tube
- [ ] Ripples in Bend
- [ ] Torque Waves in Extrusion
- [ ] Turning Sequence
- [ ] Wave/Twist in Tube

**General**

- [ ] Bend
- [ ] BOM/Route
- [ ] Broken/Damaged
- [ ] Burrs
- [ ] Contamination
- [ ] Countersink
- [ ] Cut Too Short
- [ ] Drill Holes
- [ ] Drawing
- [ ] Finish
- [ ] Folio
- [ ] Grain
- [ ] Hardware
- [ ] Inspection Incomplete
- [ ] Instructions Incomplete/Unclear
- [ ] Maintenance
- [ ] Mislabeled
- [ ] Misread
- [ ] Offset
- [ ] Out of Calibration
- [ ] Out of Sequence
- [ ] Outside Dimensions
- [ ] Ovalized
- [ ] Over/Under tolerance
- [ ] Part Incorrect
- [ ] Part Lost/Missing
- [ ] Part Moved
- [ ] Positioned Wrong
- [ ] Power Loss/Surge
- [ ] Pressure/Forced
- [ ] Temperature/Cure
- [ ] Weld
- [ ] Wrong Stock Pulled
- [ ] Other ____________________

**Item ID:** D3646-3
**Revision ID:**
**Item Name:** Arm

Accept *N900040100*

Setup Start *NS1*
Stop *NS2*

**Start Date:** 4/04/13 **Start Qty:** 4.00 *4*
**Required Date:** 4/19/13 **Req'd Qty:** 4.00 *4*
**Reference:**

**Cust Item ID:**
**Customer:**

**Approvals:** **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______
**QC:** ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Run Start *NR1*
Stop *NR2*

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---|---|---|---|---|---|---|---|---|---|
| 160 *160* | QC21- Final Inspection - Work Order Release | 0.00 | | | | | | Rm 13/12/02 | |
| QC Quality Control | Memo | 0.00 | | | | | | | |

MF
13-11-28

DQA: ________ Date: ____________

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

| Work Order: ____________ | **DISPOSITION** | **AGAINST DEPARTMENT/PROCESS** |
|---|---|---|
| Part No. ____________ | Rework ☐ | Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐ |
| NCR No. ____________ | Scrap ☐ | Machining ☐ Small Fab ☐ Prod. Eng. Coor. ☐ Quality ☐ |
| | Use-as-is ☐ | Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ |
| | Work Order Update ☐ | Large Fab ☐ Composite ☐ Supplier ☐ ☐ |

| **Root Cause** | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---|---|---|---|---|---|---|---|---|---|
| Doc/Data ☐ | | | | | | | | | |
| Equip/Tooling ☐ | | | | | | | | | |
| Operator ☐ | | | | | | | | | |
| Material ☐ | | | | | | | | | |
| Setup ☐ | | | | | | | | | |
| Other ☐ | | | | | | | | | |
| Process ☐ | | | | | | | | | |
| Supplier ☐ | | | | | | | | | |
| Training ☐ | | | | | | | | | |
| Unapproved ☐ | | | | | | | | | |

## FAULT CATEGORY

| **Landing Gear** | **General** | | | |
|---|---|---|---|---|
| ☐ Bending | ☐ Bend | ☐ Grain | ☐ Ovalized | ☐ Pressure/Forced |
| ☐ Centre Not Concentric to O/S | ☐ BOM/Route | ☐ Hardware | ☐ Over/Under tolerance | ☐ Temperature/Cure |
| ☐ Cracks | ☐ Broken/Damaged | ☐ Inspection Incomplete | ☐ Part Incorrect | ☐ Weld |
| ☐ Crushed/Crimped | ☐ Burrs | ☐ Instructions Incomplete/Unclear | ☐ Part Lost/Missing | ☐ Wrong Stock Pulled |
| ☐ Cuffs | ☐ Contamination | ☐ Maintenance | ☐ Part Moved | |
| ☐ Heat Treat | ☐ Countersink | ☐ Mislabeled | ☐ Positioned Wrong | |
| ☐ Inspection Strip in Tube | ☐ Cut Too Short | ☐ Misread | ☐ Power Loss/Surge | ☐ Other |
| ☐ Ripples in Bend | ☐ Drill Holes | ☐ Offset | | |
| ☐ Torque Waves in Extrusion | ☐ Drawing | ☐ Out of Calibration | | |
| ☐ Turning Sequence | ☐ Finish | ☐ Out of Sequence | | |
| ☐ Wave/Twist in Tube | ☐ Folio | ☐ Outside Dimensions | | |

# Picklist Print

*April-05-13 1:24:47 PM*



**Work Order ID:** 99383

**Parent Item:** D3646-3

**Parent Item Name:** Arm

**Start Date:** 4/04/13 **Required Date:** 4/19/13

**Start Qty:** 4.00 **Required Qty:** 4.00

**Comments:** IPP Rev. A new issue 07.07.25 EC verified by:JLM

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **M304TR0.500W.035**<br>304 RD Tube .500 x .035W | | Purchased | No | | | 110 | f | 369.2855 | 2.91 | 12.252632 | FF | 13-11-26 | |

| Location | Loc Qty | Loc Code | |
|---|---|---|---|
| MAT017 125513 | 369.28554 | | 9.1894 |
| 120633 | 70.1979 | | |
| 121848 | 29.92344 | | |
| 123303 | 201.9106 | | |
| 123449 | 67.2536 | | |
| 126922 | | | 3.0631 |

DQA: ________ Date: ________

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: ____________________

Part No. ____________________

NCR No. ____________________

**DISPOSITION**

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Work Order Update ☐

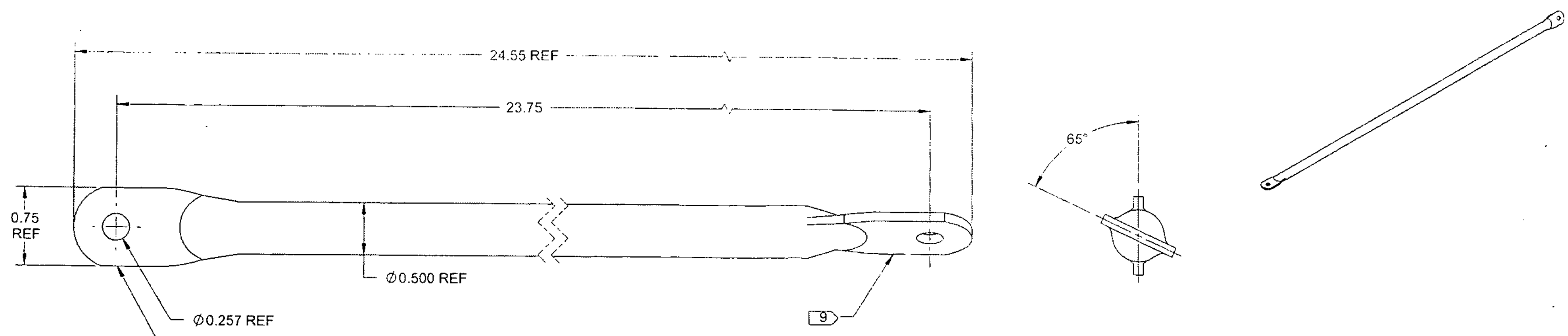
**AGAINST DEPARTMENT/PROCESS**

| | | | |
|---|---|---|---|
| Skid-tube ☐ | Crosstube ☐ | Water Jet ☐ | Engineering ☐ |
| Machining ☐ | Small Fab ☐ | Prod. Eng. Coor. ☐ | Quality ☐ |
| Thermoforming ☐ | Finishing ☐ | Rec/Store/Packaging ☐ | Other ☐ |
| Large Fab ☐ | Composite ☐ | Supplier ☐ | ☐ |

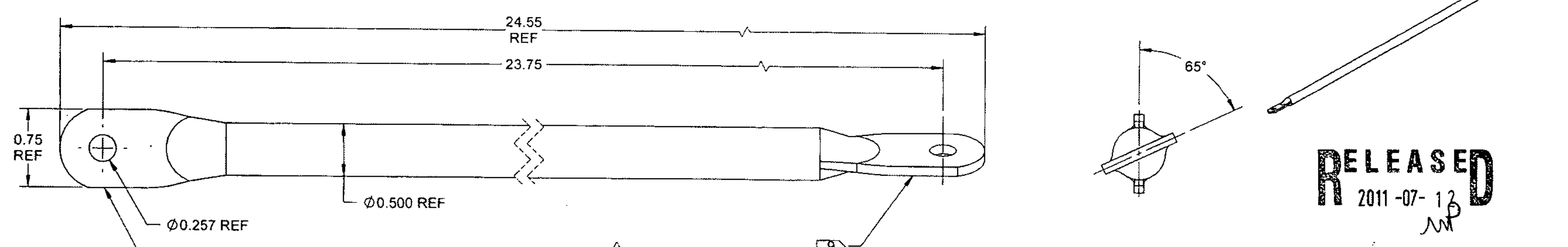
| Root Cause | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---|---|---|---|---|---|---|---|---|---|
| Doc/Data ☐ | | | | | | | | | |
| Equip/Tooling ☐ | | | | | | | | | |
| Operator ☐ | | | | | | | | | |
| Material ☐ | | | | | | | | | |
| Setup ☐ | | | | | | | | | |
| Other ☐ | | | | | | | | | |
| Process ☐ | | | | | | | | | |
| Supplier ☐ | | | | | | | | | |
| Training ☐ | | | | | | | | | |
| Unapproved ☐ | | | | | | | | | |

**FAULT CATEGORY**

| Landing Gear | General | | | |
|---|---|---|---|---|
| ☐ Bending | ☐ Bend | ☐ Grain | ☐ Ovalized | ☐ Pressure/Forced |
| ☐ Centre Not Concentric to O/S | ☐ BOM/Route | ☐ Hardware | ☐ Over/Under tolerance | ☐ Temperature/Cure |
| ☐ Cracks | ☐ Broken/Damaged | ☐ Inspection Incomplete | ☐ Part Incorrect | ☐ Weld |
| ☐ Crushed/Crimped | ☐ Burrs | ☐ Instructions Incomplete/Unclear | ☐ Part Lost/Missing | ☐ Wrong Stock Pulled |
| ☐ Cuffs | ☐ Contamination | ☐ Maintenance | ☐ Part Moved | |
| ☐ Heat Treat | ☐ Countersink | ☐ Mislabeled | ☐ Positioned Wrong | |
| ☐ Inspection Strip in Tube | ☐ Cut Too Short | ☐ Misread | ☐ Power Loss/Surge | ☐ Other ____ |
| ☐ Ripples in Bend | ☐ Drill Holes | ☐ Offset | | |
| ☐ Torque Waves in Extrusion | ☐ Drawing | ☐ Out of Calibration | | |
| ☐ Turning Sequence | ☐ Finish | ☐ Out of Sequence | | |
| ☐ Wave/Twist in Tube | ☐ Folio | ☐ Outside Dimensions | | |




**D3646-1 ARM**




**D3646-2 ARM** (C)

RELEASED
2011-07-12

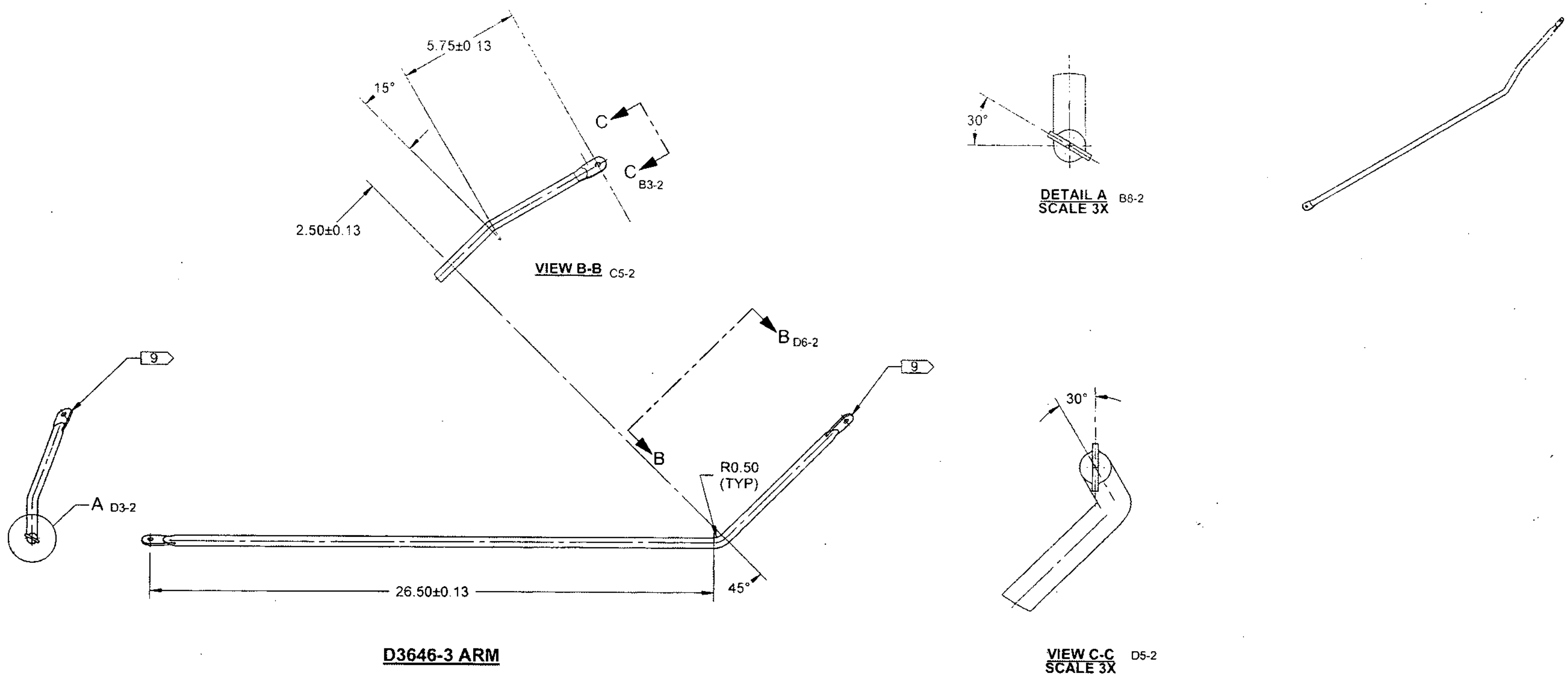
NOTES:
1) MATERIAL: AISI 304/316 SS TUBE ⌀0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213 (REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-X" AND B/N "BXXXXX" PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.38 lbs
8) DELETED AT REV. C (C)
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

99383 MCJ
1304-05

| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| C | ADD-2 & -4 FOR LHS INSTALLATION. DELETE REFERENCES TO TEMPLATES (NOTE 8) PER SHOP REQUEST. | AJS | 11.07.11 |
| B | REFORMAT DWG, ANGLE 65° WAS 45° (ZN C3-1), ADD IDENTIFICATION TAG (ZN A8-1, A8-2) | CP | 09.06.04 |
| A | NEW ISSUE | MB | 07.06.06 |

| | | |
|---|---|---|
| DESIGN | MB | **DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA |
| DRAWN | AJS | |
| CHECKED | MP | DRAWING NO. D3646 — REV. C — SHEET 1 OF 3 |
| MFG. APPR. | [signature] | |
| APPROVED | MP | TITLE ARM — SCALE NTS |
| DE APPR. | [signature] | |
| DATE | 11.07.11 | |

99383



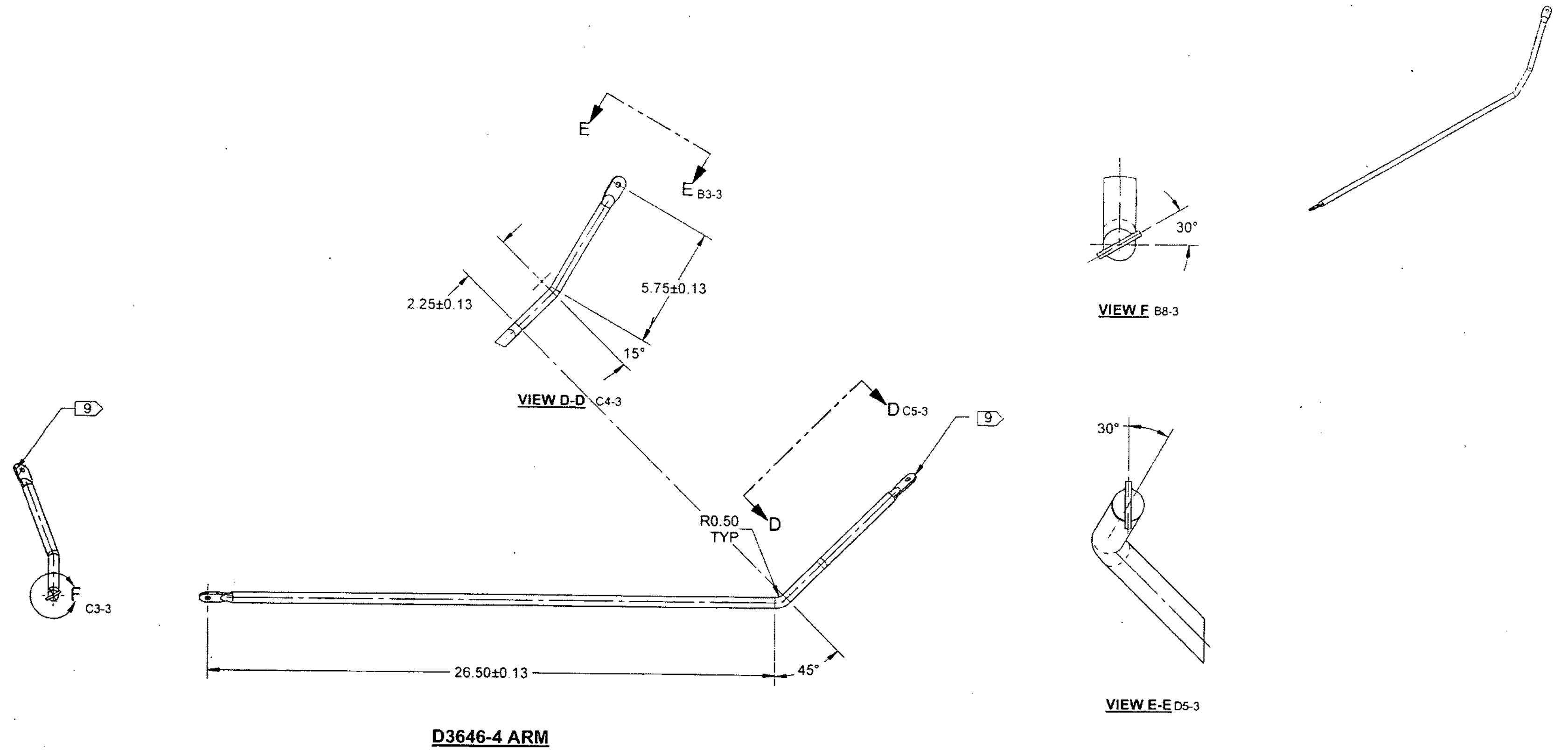

**D3646-3 ARM**

RELEASED 2011-07-13

NOTES:
1) MATERIAL: AISI 304/316 SS TUBE Ø0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213 (REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-3" AND B/N "BXXXXX" PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.57 lbs
8) DELETED AT REV C. (C)
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

| DESIGN | MB | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |
|---|---|---|
| DRAWN | AJS | |
| CHECKED | [signature] | DRAWING NO. D3646 — REV. C — SHEET 2 OF 3 |
| MFG. APPR. | [signature] | |
| APPROVED | [signature] | TITLE ARM — SCALE NTS |
| DE APPR. | [signature] | |
| DATE | 11.07.11 | |

99383




D3646-4 ARM

RELEASED 2011-07-12

NOTES:
1) MATERIAL: AISI 304/316 SS TUBE Ø0.500 X 0.035 WALL PER ASTM A213/A269 OR ASME A213 (REF DART SPEC. M304TR0500W.035)
2) FINISH: POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3646-4" AND B/N "BXXXXX" PER DART QSI 044 6.1 USING REMOVABLE TAG
7) WEIGHT: 0.57 lbs
8) DELETED AT REV C. (C)
9) PUNCH BOTH ENDS PER SPEC CONTROL DWG D2727

| DESIGN | MB | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA |
|---|---|---|
| DRAWN | AJS | |
| CHECKED | [signature] | DRAWING NO. D3646 REV. C SHEET 3 OF 3 |
| MFG. APPR. | [signature] | |
| APPROVED | [signature] | TITLE ARM SCALE NTS |
| DE APPR. | [signature] | |
| DATE | 11.07.11 | |

# DART AEROSPACE LTD

| Description: ARM | | Work Order: 99383 |
|---|---|---|
| Inspection Drawing: D 3646 | Rev: C | Part Number: 3646 - 3 |

## INSPECTION SHEET

| Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|---|---|---|---|---|---|---|
| 2650 | ± 0.13 | 26.50 | ✓ | | Tapemeasure | S Fab 07 |
| 45° | .5° | 45° | ✓ | | angle Finder | S Fab 10 |
| 2.50 | ± 0.13 | 250 | ✓ | | Tape meas | S Fab 07 |
| 15° | .5° | 15° | ✓ | | Angle Finder | S Fab 10 |
| 5.75 | ± 0.13 | 5.75 | ✓ | | Tape meas. | S Fab 07 |
| 30° | .5° | 30° | ✓ | | Angle Finder | S Fab 04 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| Measured by: F. Franken | Checked By: DAS 30 9-89 | QC inspector: DAS 27 9-89 | Engineering Approval (*if necessary*): |
|---|---|---|---|
| Date 13-11-26 | Date 13/11/26 | Date 13/11/27 | Date |

H:\FORMS\Quality Assurance\approved QA\Inspection sheet revA